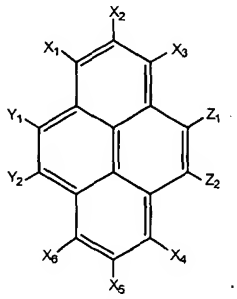
ABSTRACT

A pyrene based compound and its use in an organic light emitting device (OLED) according to the following formula:



In the above formula, Z_1 represents a hydrogen atom, deuterium atom, oxygen atom, silicon atom, selenium atom, substituted or unsubstituted aryl group, substituted or unsubstituted heteroaryl group, substituted or unsubstituted aryl amine or a combination thereof, and Z_2 represents a hydrogen or deuterium atom. One of Y_1 and Y_2 represents a hydrogen atom, deuterium atom, oxygen atom, silicon atom, selenium atom, a substituted or unsubstituted aryl group, substituted or unsubstituted heteroaryl group, substituted or unsubstituted aryl amine or a combination thereof, and the other of Y_1 and Y_2 represents a hydrogen or deuterium atom. X_1 through X_6 independently represent hydrogen atoms, deuterium atoms, alkyl groups or aryl groups, and at least one of X_1 through X_6 represents a bulky alkyl group or bulky aryl group. Also, at least one of X_1 through X_6, Y_1,Y_2, Z_1, and Z_2 represents a deuterium atom. The pyrene based compounds of this invention are useful in emissive layers, hole transport layers, or electron transport layers of an organic light emitting device (OLED). Within these layers, the pyrene based compound can serve directly to constitute the layers or as a host and/or dopant.